

Application No. 09/633,002  
Office Action dated March 4, 2004  
Amendment dated June 10, 2004

REMARKS

Claims 11-16, and 27-33 are pending. Claims 1-10, and 17-26 have been canceled. Claim 33 has been added. No claims have been allowed.

Applicant notes that the rejection of claims 11-14 and 27-30 under 35 U.S.C. 112 has been withdrawn.

Claims 11, 12, 27, and 28 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Bluck et al. (6,101,972) in view of Dietz et al. (4,452,642), Matsuyama (5,149,375), and Hatakeyama et al. (5,216,241).

Applicant has amended independent claims 11 and 27. Claim 11 now calls for moving a deposited film from a member located in a vacuum apparatus, the method comprising, *inter alia*, placing the object in the chamber and heating a hot element to 400° C. or higher without generating a plasma. The term "member" is defined on page 10, lines 29-31 of the instant (replacement) specification submitted with a Preliminary Amendment on August 4, 2000.

Bluck et al. teaches a plasma processing system and method. As set forth in Bluck et al., column 5, lines 56-58, and column 6, lines 67 through column 7, line 6, a plasma is formed. Thus, Bluck et al.'s cleaning method is carried out using a plasma. Applicant has specifically called for heating the hot element without generating a plasma. Applicant's cleaning mechanism, as claimed, is very different from Bluck et al. Applicant's claims 11 and 27, as amended, both call for contacting the cleaning gas with the hot element to decompose and/or activate the cleaning gas to generate an activated species therefrom. This is very different from the plasma method disclosed by Bluck et al.

The Examiner has also stated that Dietz et al. teaches that, when utilizing a hot element to activate a cleaning gas such as hydrogen in order to subsequently clean the walls of the chamber, platinum is a suitable material for the filament and that the filament should be heated to a temperature above 1300° C. to activate the cleaning gas. As set forth in Applicant's prior comments on Dietz et al. submitted in this patent application, which comments are incorporated herein by reference, Dietz et al. uses a platinum filament to activate hydrogen, wherein the heating element will not react with the hydrogen atoms or ions and the heating element is therefore not consumed by such gases, as opposed to the instant claimed invention which uses a

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very corrosive gas. Dietz et al. does not use the filament to activate cleaning gas containing a fluorine or a chlorine atom which are very corrosive. Dietz et al. therefore does not suggest or teach that the plasma filament is available for use with such a corrosive cleaning gas.

Matsuyama teaches activating gases for depositing a film within a chamber rather than for removing a deposited film with an activated gas. The Applicant therefore respectfully submits that Matsuyama teaches away from Applicant's invention. The fact that a filament has a resistance in a deposition atmosphere does not mean that the filament also has a resistance in a cleaning gas atmosphere.

As to Hatakeyama et al., that reference relates to a fast atom beam source which is capable of emitting a fast atom beam efficiently at a relatively low discharge voltage. That patent relates to non-analogous technology belonging to a very different technical field. Applicant submits that one skilled in the art would not have been motivated to have applied the teachings of Hatakeyama et al. to the cleaning of a deposited film.

In view of the foregoing, Applicant respectfully submits that the invention as claimed in claims 11, 12, 27, and 28, distinguishes over and is not obvious in view of the cited references. Even if one were able to combine the teachings of the cited references, Applicant submits that Applicant's invention would not result. The Examiner has engaged in hindsight and has located unrelated teachings in various patents and has used Applicant's claimed invention as a blueprint for assembling those unrelated parts. Such is not permissible. Applicant therefore respectfully submits that claims 11, 12, 27, and 28, as amended, distinguish patentably over the cited references.

Claims 13, 14, 29, and 30 have been rejected under 35 U.S.C. 103(a) as unpatentable over Bluck et al. (6,101,972) in view of Deitz et al. (4,452,642), Matsuyama (5,149,375), and Hatakeyama et al. (5,216,241), and further in view of Iwasaki et al. (JP 03-226578A).

Claims 13 and 14 depend from claim 11. Claims 29 and 30 depend from claim 27. Iwasaki et al. does not cure the defects in the cited references pointed out hereinabove. For the reasons given above, Applicant submits that the rejected claims 13, 14, 29, and 30 are not anticipated by nor rendered obvious in view of the cited references.

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Claims 15, 16, 31, and 32 have been rejected under 35 U.S.C. 103(a) as unpatentable over Bluck et al. (6,101,972) in view of Dietz et al. (4,452,642), Matsuyama (5,149,375), Hatakeyama et al. (5,216,241), and further in view of Hatano et al. (5,709,757). Claims 15 and 16 depend from claim 11. Claims 31 and 32 depend from claim 27. Applicant submits that Hatano et al. does not cure the defects in the references pointed out hereinabove. Applicant therefore submits that claims 15, 16, 31, and 32 distinguish patentably over the cited references and are not obvious in view thereof.

Claims 11, 12, 15, and 16 have been rejected as unpatentable over Yamanaka et al. (6,592,771) under 35 U.S.C. 103(a). The Examiner states that Yamanaka et al. teaches cleaning the chamber walls with fluorine containing gases in column 12, lines 15-39. However, Applicant respectfully points out that Yamanaka et al. **utilizes a plasma** to clean the chamber walls. Note, for instance, Yamanaka et al. column 12, line 21, where he specifically states that a plasma is generated. Applicant also respectfully refers the Examiner to Yamanaka et al., column 21, lines 40-45; column 28, lines 28-34; and column 40, lines 56-60. In each of those paragraphs, Yamanaka et al. discloses that cleaning is accomplished by utilizing a plasma. Yamanaka et al. also discloses an etching or ashing method (not a cleaning method), without using plasma, for etching films on the wafer in the manufacturing process of semiconductor devices. Thus, Yamanaka et al. utilizes the filament to carry out the etching of films formed on the wafer and utilizes a plasma to carry out the cleaning of the chamber. Thus, Yamanaka et al. apparently did not recognize that the etching method using the filament could be applied to the cleaning of the chamber. If Yamanaka et al. had recognized that fact, Yamanaka et al. would have also employed the filament for cleaning the chamber instead of accomplishing cleaning in the presence of a plasma. In other words, Yamanaka et al.'s cleaning method is similar to that of Bluck et al. but very different from the method claimed in claim 11 (as amended). As pointed out hereinabove, Applicant has called for heating a hot element without generating a plasma. Applicant therefore submits that claim 11 distinguishes over the cited reference to Yamanaka et al.

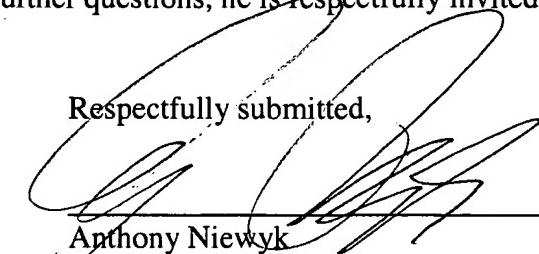
In view of the foregoing, Applicant respectfully submits that all claims at issue, as amended, are in condition for allowance and respectfully request allowance thereof.

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In the event Applicant has overlooked the need for an additional extension of time, payment of fee, or additional payment of fee, Applicant hereby petitions therefor and authorizes that any charges be made to Deposit Account No. 02-0385, Baker & Daniels.

Should the Examiner have any further questions, he is respectfully invited to telephone the undersigned at 260-460-1695.

Respectfully submitted,

  
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